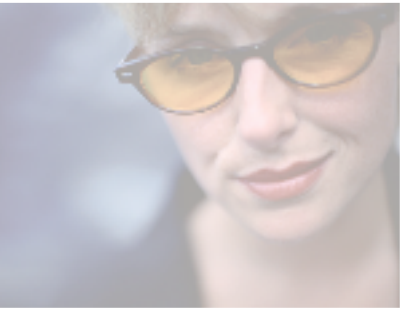
Gateway 860 SATA NAS User's Guide



Installing | Getting Help | Gateway™

Contents

1 Overview 1

Features 2
Front 4
Front panel indicators 5
Rear 7
Rear panel indicators 8
LCD screen 9
Storage 10
CD drive 10
Caring for your CDs 11
Hard drive 11

2 Setting Up 15

Requirements 16
Selecting a site 16
Warnings 16
Cabinet installation technical details 17
Installing on a table top 19
Installing into a server cabinet 20
Cabinet installation precautions 20
Connecting cables 26
Turning on your NAS 29
Troubleshooting 30
Turning off your NAS 31

3 Customizing Your NAS 33

Precautions 34
Preventing static electricity discharge 34
Expanding connectivity 35
Built-in networking 35
USB 36
Upgrading 37
Removing or installing a hot-swap hard drive 37

4 Configuring the NAS 39

Overview 40
Main menu 41
View Info 42

Network 42
Date/Time 46
System Info 47
View Event 48
Shut Down 48

5 System Management 51

Windows installer 52
RAID Configuration 54
System Image Restoration 56
NAS Explorer 57
Installing NAS Explorer 57
Uninstalling NAS Explorer 57
Running NAS Explorer 58
NAS Explorer user interface 58
Finding a NAS on the network 59
Configuring the NAS's network setting 60
Configuring the search range setting 61
Managing event logs 65

6 Troubleshooting 71

Telephone support 72
Before calling Gateway Technical Support 72
Telephone support 73
Safety guidelines 74
Troubleshooting steps 75

A Glossary 77

B Safety, Regulatory, and Legal Information 83

1 Overview

Read this chapter to learn about the features and components of your NAS (Network Attached Storage).

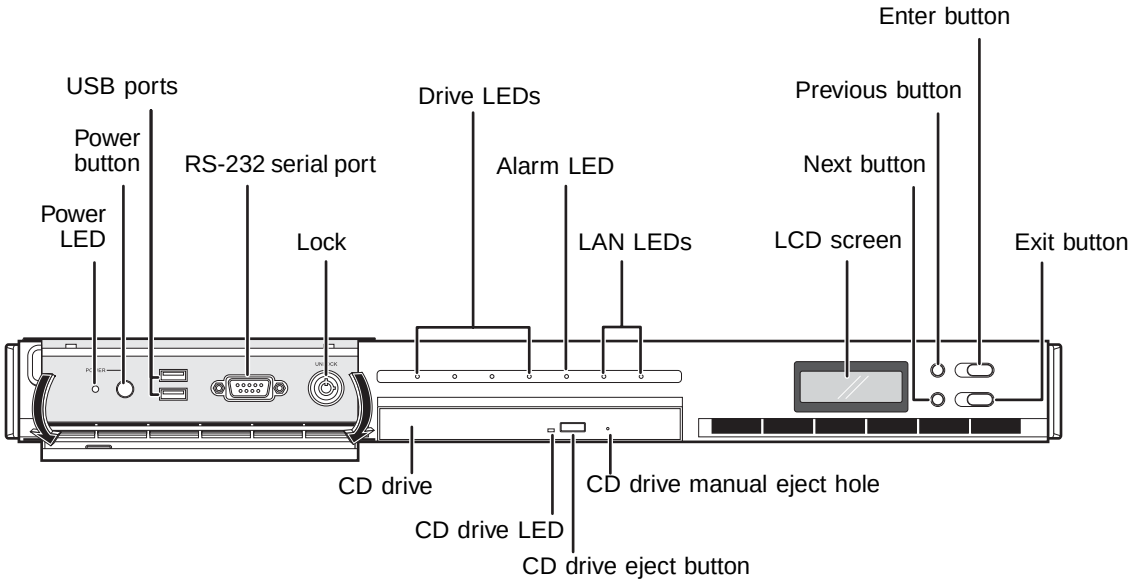
Features

The Gateway 860 NAS is a 1U, high-density, powerful, rack-mountable system that offers a new standard for flexible management and monitoring of servers by network administrators. Features include:

- FC-PGA (Flip-Chip Pin Grid Array) 478 processor socket that supports Intel® Pentium® 4 processor up to 3.06 GHz with 533 MHz FSB
- Server Works GC-SL chipset consisting of the following:
  - CMIC-SL (north bridge)
  - CIOBX2 (I/O bridge)
  - CSB5 (south bridge)
- Two gigabit Ethernet controllers
- Four DDR 200/266 DIMM slots that accept a maximum memory capacity of 4 GB
- One 64-bit/33 MHz PCI slot
- Storage support for:
  - One slim type CD drive
  - Four hot-swap Serial-ATA hard drive bays
  - Four hard drives with RAID configurations
- Front control panel
  - LCD screen and control keypad
  - 2 USB ports
  - Power button
  - Serial port (for IPMI only)
  - Security lock

- Rear panel connectors
  - PS/2 keyboard port
  - PS/2 mouse port
  - Serial port (for IPMI only)
  - SCSI port
  - VGA port
  - 2 LAN ports (RJ-45)

Front



Item	Description
Power LED	Indicates the presence of power in the NAS.
Power button	Press to turn the NAS on or off.
USB ports	Connect USB peripheral devices to these ports.
BMC serial port	Connect a UPS (uninterruptable power supply) to this port. This port is a serial management port for UPS and other future options. This port communicates with the BMC (Board Management Controller). For IPMI use only.
Lock	Locks the bezel. The front panel is locked when the NAS is shipped from the factory. To unlock the bezel, insert the supplied key into the lock and turn it counterclockwise until it points to the unlock icon.
Drive LED	Indicates hard drive status and activity.
Alarm LED	Indicates system status.
LAN LED	Indicates LAN status and activity.

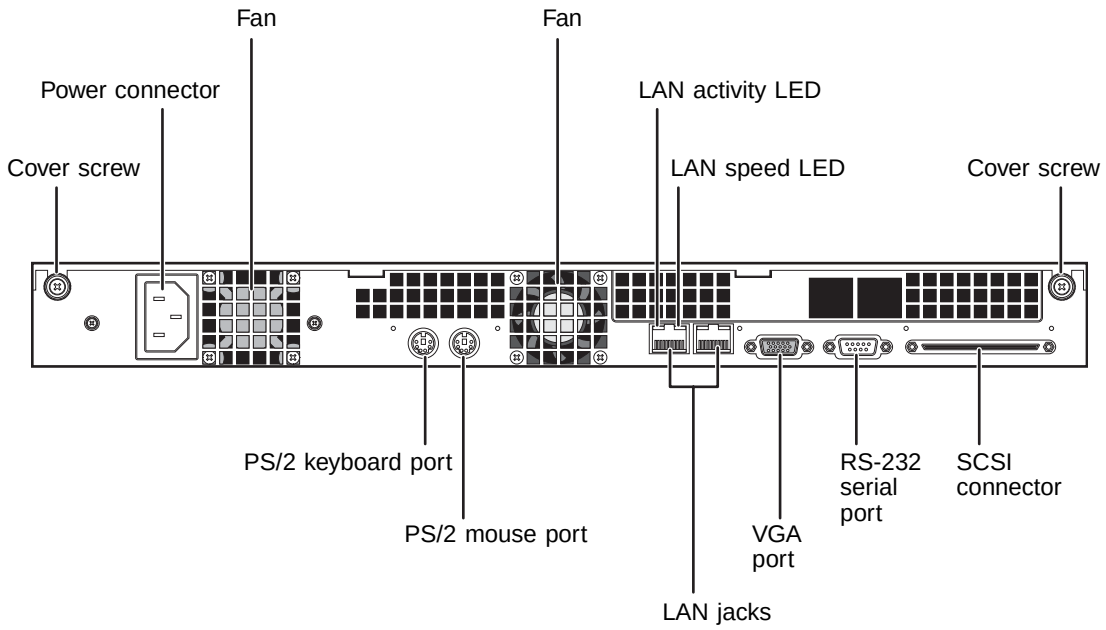
Item	Description
LCD screen	Displays the NAS name, network settings, and number of events logged by the NAS.
Next button	Press to scroll through the menu and submenu items.
Previous button	Press to scroll through the menu and submenu items.
Enter button	Press to choose an option, to increase the numerical value of a setting, to make a selection, or change a setting.
Exit button	Press to close a submenu or return to the menu.
CD drive	CD drive for installing software.
CD drive LED	Indicates CD drive activity.
CD drive eject button	Opens the CD drive's disc tray.
CD drive manual eject hole	Insert a straightened paper clip into this hole to manually open the disc tray when the NAS is off.

Front panel indicators

LED	Green	Orange	Meaning
Power	On		The NAS is on.
	Off		The NAS is off.
HDD (0, 1, 2, 3)	On	Off	Hard drive status is normal.
	Off	On	Hard drive activity.
.	Off	Off	No hard drive activity. You can remove a hard drive from the drive bay or hot-swap drives when a hard drive is in this state. For instructions on how to remove a hard drive, see "Removing or installing a hot-swap hard drive" on page 37.

LED	Green	Orange	Meaning
Alarm	On	Off	NAS is operating normally.
	Off	On	System error.
	Off	Off	NAS is not turned on.
LAN1 and 2	On	Off	Network link is established.
	On	On	Network link is established and running at its supported speed.
	Off	Off	▪ Network link is not established. ▪ The LAN cable is not working.

Rear



Item	Description
Cover screws	Secure the top access cover.
Power connector	Plug the power cord into this connector.
Fan	Cools the NAS. Be careful not to block the fan's ventilation holes. If the ventilation holes are blocked, overheating may occur.
LAN activity indicator	Green indicates a link on the NAS's LAN port. When the indicator is blinking, there is LAN activity in the NAS's LAN port.
LAN speed LED	▪ Green indicates the NAS is connected to a Gigabit Ethernet hub. ▪ Orange indicates the NAS is connected to a 100 Megabit Ethernet hub. ▪ When the indicator is not lit, the NAS is connected to a 10 Megabit Ethernet hub.

Item	Description
PS/2 keyboard port	Plug a PS/2 keyboard into this port.
PS/2 mouse port	Plug a a PS/2 mouse into this port.
LAN jacks (LAN1, LAN2)	Plug 10 Base-T, 100 Base-TX, or 1000 Base-T network cables into these jacks.
VGA port	Plug a monitor into this port.
RS-232 serial port	Plug a UPS or other serial device into this port.
SCSI connector	Plug a SCSI device into this connector.

Rear panel indicators

LED	Green	Orange	Meaning
LINK-ACT	On		Network link is established.
	Blinking		Network link is running and transferring data.
	Off		▪ Network link is not established. ▪ The LAN cable is faulty.
Speed	On	Off	Network link is established and is running at its maximum supported speed.
	Off	On	Network link is established and is running at 100 Mbps.
	Off	Off	Network link is established and is running at 10 Mbps.

LCD screen

The LCD screen is a 2-line by 12-character screen that lets you see the name, settings, date and time, event status, CPU temperature, and fan speed of the NAS. Normally the NAS name and the IP address of the LAN 1 or 2 connection also appears on the LCD screen.

A configuration program built into the NAS lets you configure the network settings, view general data about the NAS, and turn off or restart the NAS. The utility includes the following configuration information:

- Product information
- Network information
- Date and time
- Processor temperature
- Fan speed
- Event log

Navigate the utility by using the following keys:

Buttons	Function
Enter	Press this button to: ▪ Choose an option from the menu. ▪ Increase the numerical value of a setting. ▪ Select and change an option's setting.
Exit	Press this button to close a submenu or return to the menu.
Next and Previous	Press these buttons to: ▪ Move the arrowhead and scroll through the menu and submenu. ▪ Move from one field to another.

Storage

The NAS supplies you with the following media storage:

- CD drive
- High-capacity Serial-ATA hard drive

CD drive

The CD drive lets you access data on CDs. The drive cannot read DVDs or burn CD-Rs or CD-RWs.

To insert a CD into the CD drive:

1. Press the eject button located on the front of the CD drive. The disc tray opens.
2. Place the CD onto the disc tray. Make sure that the label or title side of the disc is facing upward.

Warning

Hold the disc by the edges to avoid leaving smudges or fingerprints.

3. Slide the disc tray into the NAS until it clicks into place.

To open the CD tray:

- To open the disc tray when the NAS is turned on, press the eject button.

  - OR -

  To open the disc tray when the NAS is turned off, insert a straightened paper clip into the manual eject hole.

Caring for your CDs

- Keep your CDs in a CD case when not in use to avoid scratches or other damage. Any kind of dirt or damage can affect the data on the disc or stop the drive from successfully reading the disc.
- When handling discs, always hold them by the edges to avoid smudges or fingerprints.
- When cleaning discs, use a clean, dust-free cloth and wipe in a straight line from the center to the edge. Do not wipe in a circular motion.
- Clean your CD drive periodically.

Hard drive

Your NAS came installed with four hot-swap hard drives. By default, the NAS is configured with the RAID (redundant array of independent disks) configurations, either RAID 0 (striped), RAID 1 (mirrored), or RAID 5 (striped with parity).

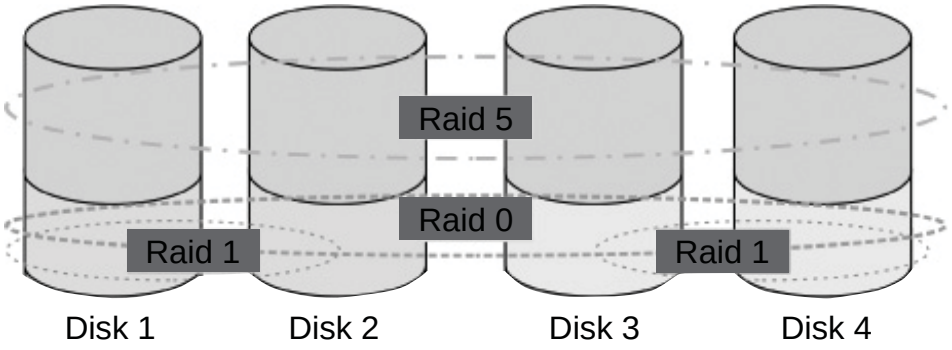
The NAS uses a Promise PDC20275 IDE controller to support the ATA/133 channel and a high-performance ARC600-66 IDE RAID controller with four Marvell 8818030 bridges to support the four hot-swap SATA hard drives.

When correctly configured, the NAS can provide non-stop service with a high degree of fault tolerance through the use of RAID technology and advanced array management features. The hard drive can be configured to RAID levels 0, 1 (0+1), 5, and 10.

Hardware RAID layout

The NAS is recognized by the host computer's operating system as two logical drives. The two logical drives are configured to RAID levels 0+1 and 5. The system volume, installed with the host operating system, is organized as RAID 0+1 and the data volume is organized as RAID 5.

The volume layout for the NAS is illustrated below.



Volume configuration

The organized volumes on the NAS include:

- System volume

  This volume is organized as a RAID 0+1 volume. This volume includes the operating system image. The default size for this volume is 10 GB. Use the RAID Volume Configuration utility to configure the size. For more information on how to use the RAID Volume Configuration utility, see "RAID Configuration" on page 54.

- Data volume

  The remaining hard drive space is organized as the data volume using RAID 5. For a NAS installed with four 120 GB hard drives, the data volume size can be set to 345 GB.

RAID volume computation

Depending on the hard drive capacity, the system volume and data volume capacity can have different sizes. A simple formula to calculate data volume size per RAID level is shown in the table below (where *SSV* is the size of the system's volume in gigabytes):

RAID level	Formula
5	[{(Per drive capacity × 4) – 2 × SSV}/4] × 3
0+1	[{(Per drive capacity × 4) – 2 × SSV}/4] × 2
0	(Per drive capacity × 4) – 2 × SSV

Refer to the following table for changing the data volume of your hard drive or changing the default configuration setting according to your data volume size preference:

Drive capacity (GB)	System volume (GB)	Data volume RAID 5 (GB)	Data volume RAID 10 (GB)	Data volume RAID 0 (GB)
120	10	345	230	460
250	10	735	490	960

Use the RAID configuration utility bundled with your NAS to change the system volume size and RAID level of your hard drive. For more information, see "RAID Configuration" on page 54.

2 Setting Up

This chapter provides the instructions on how to set up your NAS and connect basic and optional peripherals.

Requirements

Selecting a site

Before unpacking and installing the NAS, select a suitable installation site for maximum efficiency. Consider the following factors when choosing a site:

- Near a grounded power outlet
- Clean and dust-free
- Sturdy surface free from vibration
- Well-ventilated and away from sources of heat
- Protected from electromagnetic fields produced by electrical devices such as air conditioners and radio and TV transmitters.

Important

If your installation calls for placement on table top, install the supplied rubber feet on the bottom of the chassis. For more information, see “Installing on a table top” on page 19.

Warnings

- Do not attempt to modify or use the supplied AC power cord if it is not the exact type required. A product with more than one power supply will have a separate AC power cord for each supply.
- The power button on the NAS does not turn off AC power. To remove the AC power from the NAS, you must unplug the AC power cord from the wall outlet or power supply. The power cord is considered the disconnect device to the main (AC) power. The socket outlet that the NAS plugs into should be installed near the equipment and should be easily accessible.

Cabinet installation technical details

Take note of the following information when planning where and how to install the NAS:

Ambient temperature

The maximum operating temperature of the NAS is 95°F (35°C) and the relative humidity of the NAS is in the range 20% to 80% (non-condensing). Careful consideration should be given to installing the NAS in an environment compatible with 95°F (35°C) maximum ambient temperature.

Height and weight

Before installing the NAS, make sure that the surface on which you are setting it is strong enough to bear its weight and accommodate its size.

Dimensions (including front bezel): 17.3 × 1.7 × 24.1 inches (440 × 43.4 × 612 mm)

Weight (approximately, depending on configuration): 42 lbs. (19 kg)

Rack mounting

When mounting your NAS into a cabinet (equipment rack), make sure you maintain correct mechanical load leveling to avoid hazardous conditions.

Power source

The NAS should be operated using only the type of power source indicated on the product label.

- Voltage: 100-240 V
- Current: 6 A
- Frequency: 50/60 Hz

Circuit overloading

Appropriate consideration should be given when connecting the supply circuit to the NAS to avoid any circuit overload. The system nameplate rating should be used when addressing concerns about circuit overload.

Warning

Make sure that the site has the necessary capacity to handle the NAS. Overloading electrical supply circuits is extremely hazardous.

Reliable grounding

To avoid the potential for an electrical shock hazard, the rack assembly itself must be suitably grounded, according to your local regional electrical codes. This typically will require the rack to have its own separate ground. We recommend you consult your local approved electrician.

Electrical shock

Do not operate the NAS unit without the top cover in place. Opening or removing the cover may expose you to dangerous voltage and can cause electrical shock.

Battery precautions

There may be a danger of explosion if the CMOS battery is incorrectly replaced. Replace this battery with model CR2032 only. Use of another battery may present a risk of fire or explosion. Dispose of used batteries according to manufacturer's instructions.

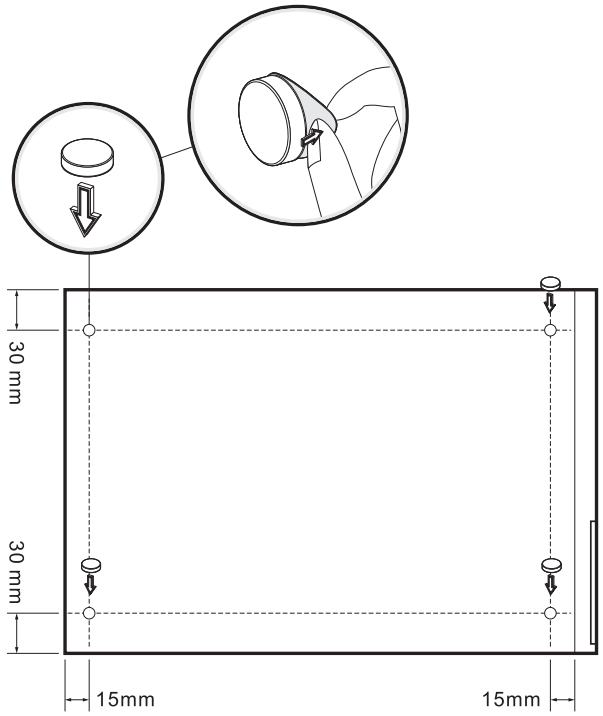
Sufficient ventilation

The vents on the front panel and the fan openings on the rear panel provide ventilation for the NAS. Make sure that these openings are not blocked and that adequate ventilation is provided where the unit is installed.

Installing on a table top

To install the NAS on a table top:

1. Attach the provided rubber feet to the NAS.
2. Place the NAS in an upright position so that the bottom is facing up, then apply the adhesive surfaces of the rubber feet on the bottom of the NAS as illustrated below.



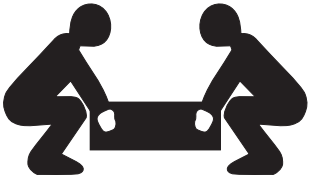
3. Place the NAS on the table top.

Installing into a server cabinet

Cabinet installation precautions

Before installing the NAS, take the following precautions:

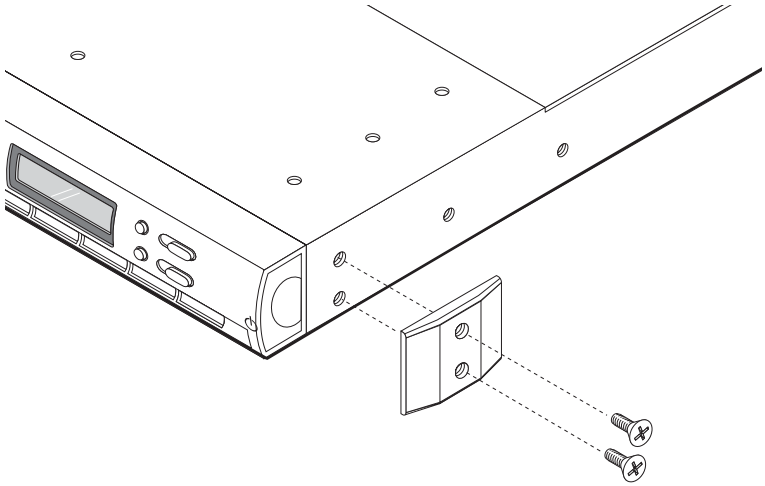
- The NAS is heavy. To minimize the chances of injuries, make sure that two or more people help in installing the NAS.



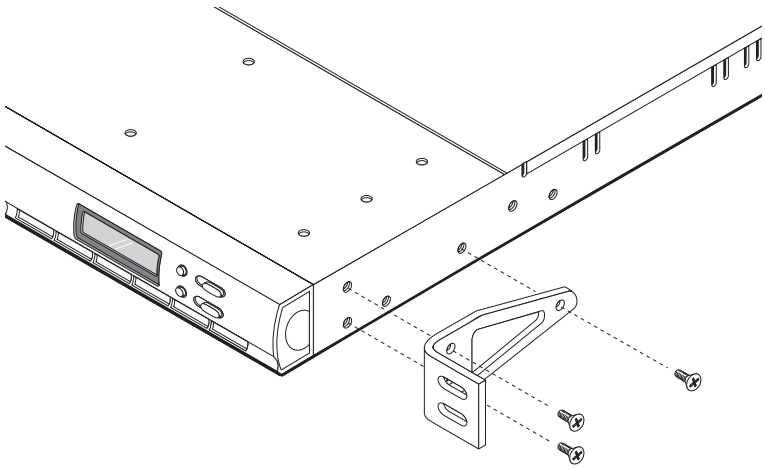
- Do not place heavy objects on the NAS.
- Before installing, mark its intended position in the rack with a felt-tip pen. Mounting the NAS so it is not level could result in malfunctions.
- If you attach the two mounting ears in the forward position on each side of the NAS, make sure that you use a four-point mounting configuration. Do not use a two-point mounting configuration.

To install the NAS into a server cabinet:

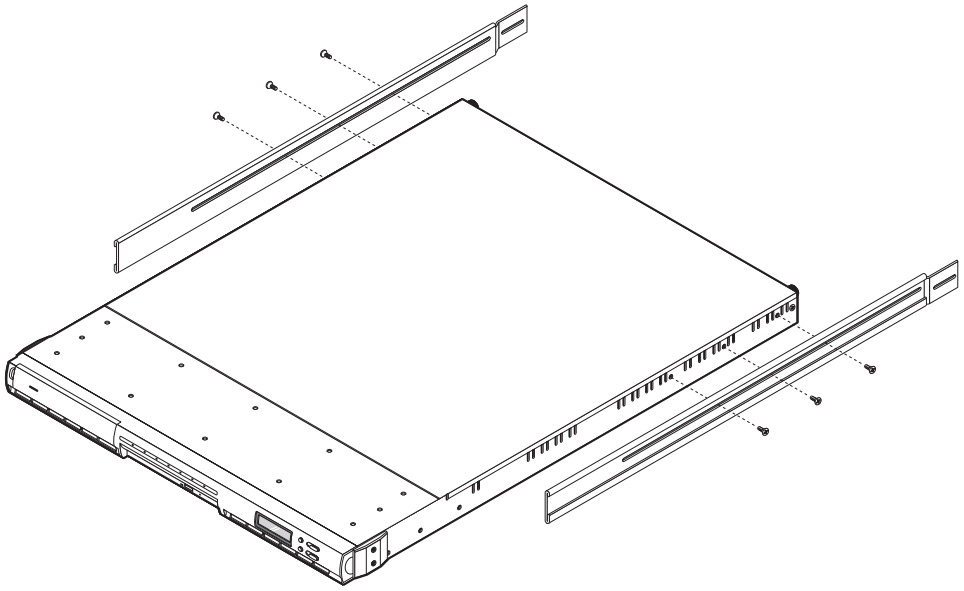
1 Use a screwdriver to remove the four screws that hold the plastic covers to the sides of the NAS.



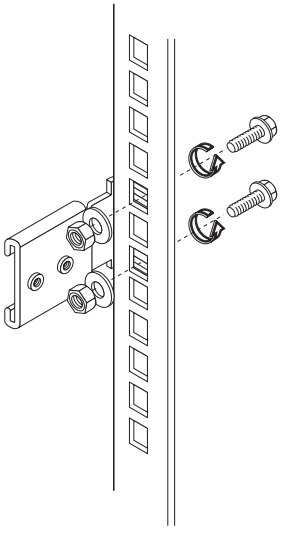
2 Use six of the supplied flat-head screws to attach the mounting ears on both sides of the NAS.



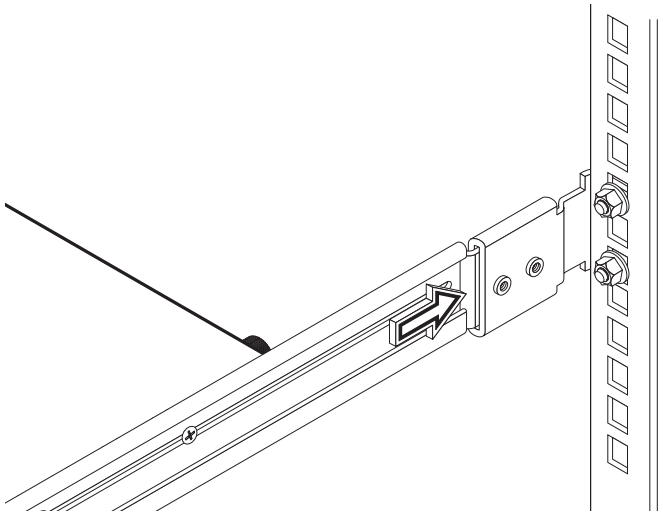
3 Temporarily fasten the rails to the sides of the NAS using the supplied round-head screws. Position the rails based on the rack depth.



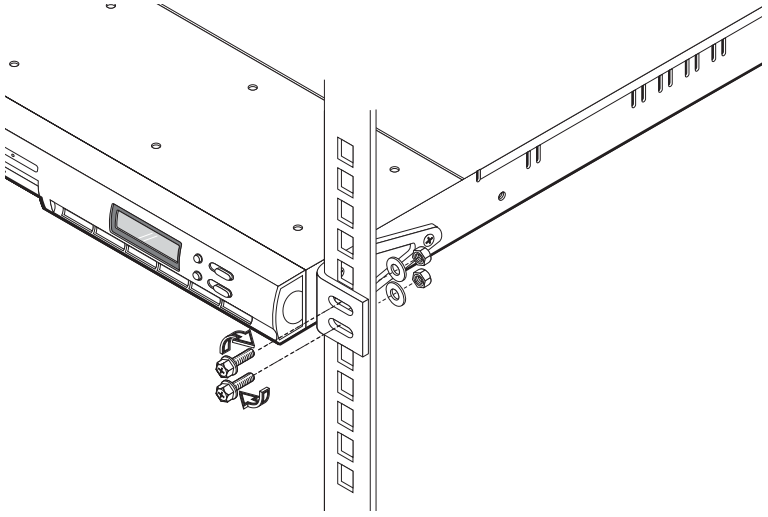
4 Using the hexagonal head screws, fasten the brackets to the back of the rack frame.



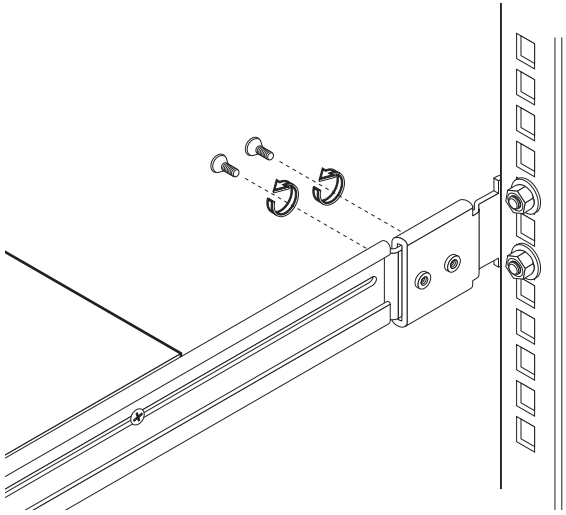
5 Two or more people must assist in lifting the NAS. Slide the back of the rails into the brackets.



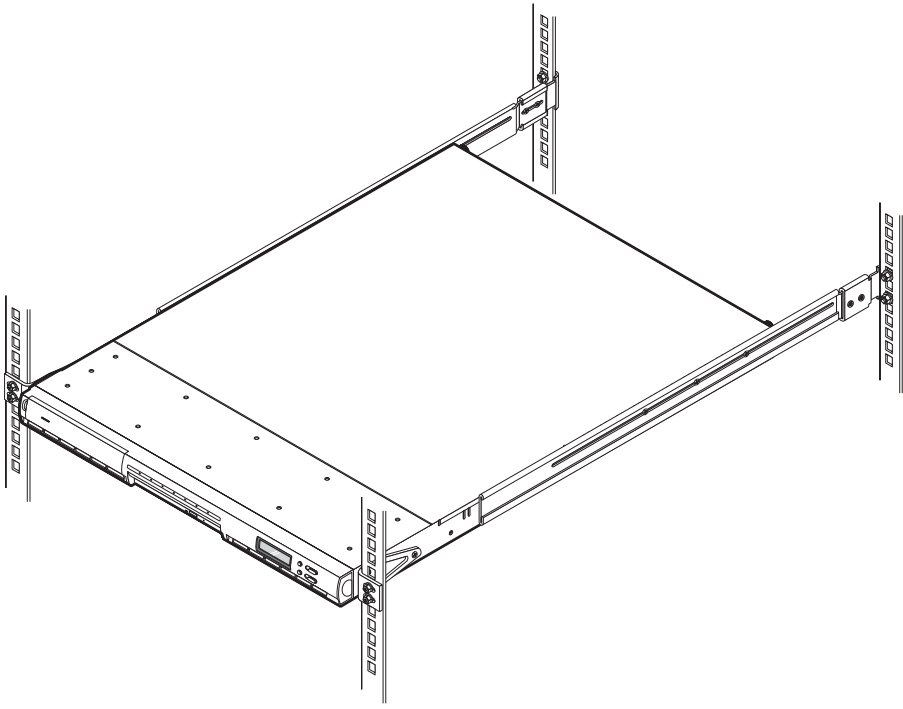
6 Using the hexagonal screws, secure the mounting ears to the front of the rack frame.



7 Fasten the back of the rails to the brackets with the round-head screws.



8 Secure the rails on both sides of the NAS by tightening the round-head screws.

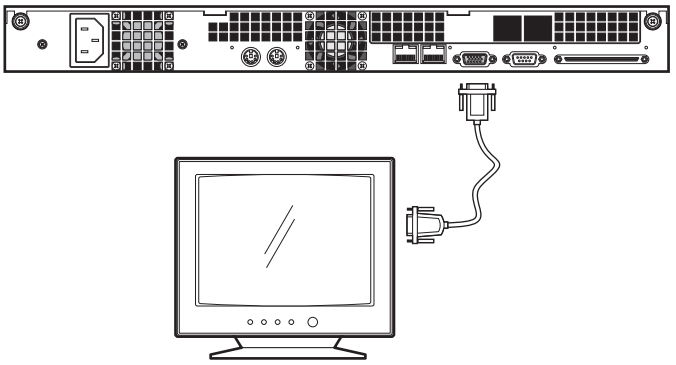


Connecting cables

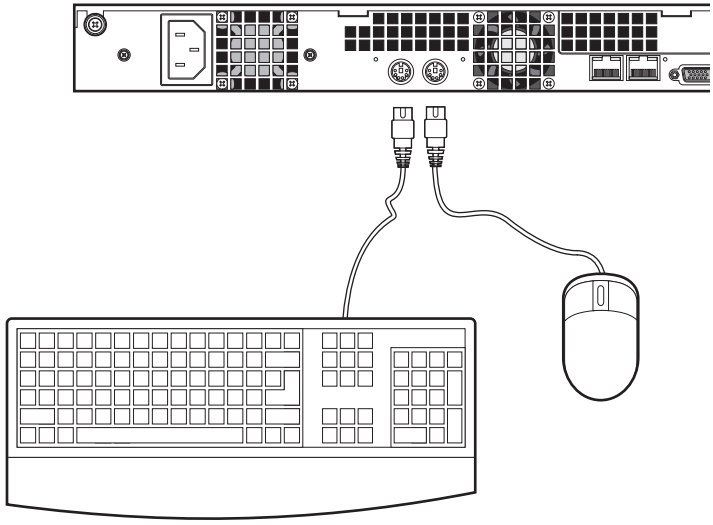
The NAS, a monitor, a keyboard, and a mouse constitute the basic NAS system. Before connecting any other peripherals, first connect the keyboard and mouse to test if the NAS is running correctly.

To connect the basic peripheral devices:

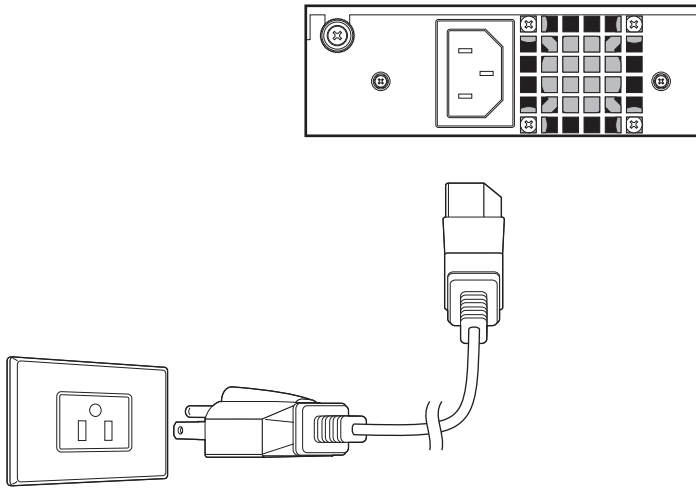
1. Connect the monitor cable into the monitor/VGA connector located on the rear panel.



2 Connect the PS/2 keyboard and mouse into the PS/2 connectors located on the rear panel.



3 Connect the power cord to the power connector located on the rear panel, then connect the other end to a correctly grounded power outlet.

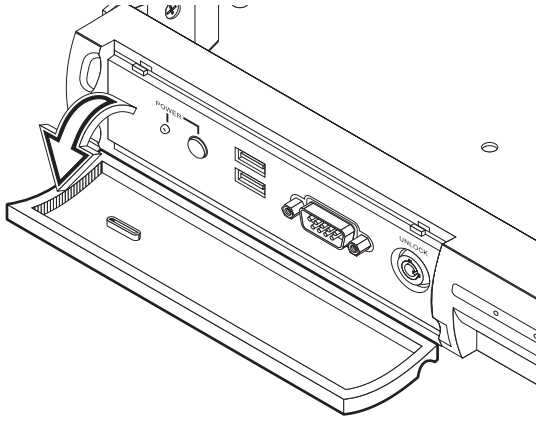


Turning on your NAS

After making sure that you have set up the NAS correctly and connected all the required cables, you can turn on your NAS.

To turn on your NAS:

1. Open the control bay cover then press the power button. The NAS starts and displays a welcome message. After that, a series of power-on self test (POST) messages appear. The POST messages indicate whether the NAS is running correctly.



2. If the NAS does not turn on or boot after pressing the power button, go to the next section for the possible cause of the boot failure.
3. Aside from the POST messages, you can determine if the NAS is in good condition by checking if the following occurred:
   - Power indicator on the front panel is green.
   - Num Lock, Caps Lock, and Scroll Lock LEDs on the keyboard are on.

Important

Your default Storage Server 2003 password is “gateway”.

Troubleshooting

If the NAS does not boot after you turn it on, check the following factors that might have caused the boot failure:

- The external power cable may be loosely connected. Check the power cable connection from the power source to the power cable connector on the rear panel. Make sure that the cable is correctly connected to the power source and to the power cable connector.
- No power comes from the grounded power outlet. Have an electrician check your power outlet.
- Loose or incorrectly connected internal power cables. Ask a qualified technician to assist you.
- For more troubleshooting steps, see “Troubleshooting” on page 71.

Turning off your NAS

- Do not use the power button to shut down the NAS.
- When the NAS shuts down, all services running on the NAS are forcibly terminated. Before shutting down the NAS, make sure no users are currently accessing the NAS. If you shut down the NAS while a file is being edited, the contents of the file may be damaged.

To turn off your NAS from Microsoft® Windows®:

1. On the Windows taskbar, click **Start**, **Shut Down**, then click **OK**. You can then turn off all peripherals connected to your system.

   - OR -

   If your NAS cannot receive input from the keyboard or mouse, press and hold the power button for at least four seconds. However, keep in mind that shutting down the NAS in this manner may damage the file system. If this happens, the file system will attempt to repair itself the next time the NAS starts (the larger the file system on the NAS, the longer time required for system repair.) If the file system cannot repair itself, some or all of the data may be lost.

To turn off your NAS from the front panel:

1. Press the **Enter** button.
2. Press the **Next** or **Previous** button to select **ShutDown** on the main menu, then press the **Enter** button.
3. Select **Shutdown**, then press the **Enter** button. The “Wait for host respond” message appears. After a few seconds, the “Shutdown OK” message appears and the NAS shuts down.

Customizing Your NAS

3

Read this chapter to learn how to add options and install or remove the hot-swap hard drives.

Precautions

Before you install any computer component, we recommend that you read the following sections. These sections contain important ESD precautions along with pre-installation and post-installation instructions.

Preventing static electricity discharge

The components inside your computer are extremely sensitive to static electricity, also known as *electrostatic discharge* (ESD).

Warning

ESD can permanently damage electrostatic discharge-sensitive components in your NAS. Prevent ESD damage by following ESD guidelines every time you open the case.

Warning

To avoid exposure to dangerous electrical voltages and moving parts, turn off your NAS and unplug the power cord and network cables before opening the case.

Before opening the case, follow these guidelines:

- Turn off your NAS.
- Wear a grounding wrist strap (available at most electronics stores) and attach it to a bare metal part of your computer.
- Touch a bare metal surface on the back of the computer.
- Unplug the power cord and the network cables.

Before working with computer components, follow these guidelines:

- Avoid static-causing surfaces such as carpeted floors, plastic, and packing foam.
- Remove components from their antistatic bags only when you are ready to use them. Do not lay components on the outside of antistatic bags because only the inside of the bags provide electrostatic protection.

Expanding connectivity

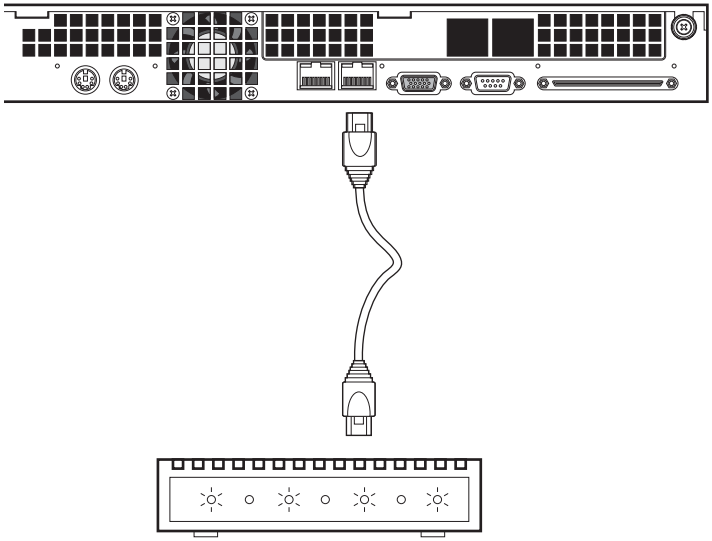
Ports let you connect peripheral devices to your NAS. For instructions on how to connect different external devices to the NAS, see your peripheral device user's guide for instructions.

Built-in networking

The built-in network feature lets you connect your NAS to an Ethernet-based (10/100/1000 Mbps) network.

To connect network cables:

1 Connect an Ethernet cable from a LAN connector (LAN0 or LAN1) on the rear of the NAS to a network jack or hub on your network.



2 See your operating system user's guide for information on how to configure your network settings.

USB

The USB (Universal Serial Bus) port is a high-speed serial bus which lets you connect and daisy-chain USB peripherals without using system resources. Your NAS has two USB ports available on the front panel.

Upgrading

Your NAS delivers superior power and performance. However, some users and the applications they use may demand more. This NAS lets you upgrade key components when you need increased performance or more storage space. The NAS supports Serial ATA hard drives.

Important

Because all hard drives have different cooling power and vibration characteristics, specific hard drive types have been validated to be compatible with the NAS. For more information, contact Gateway Technical Support.

You do not need to turn off the NAS or remove it from the cabinet when installing or removing a hot-swap hard drive.

Removing or installing a hot-swap hard drive

Important

You do not need to turn off the NAS or remove it from the cabinet (rack) to install or remove the hard drive. However, you need to make sure that no program is accessing the hard drive when you remove the drive.

To remove or install a hard drive:

1. Identify the defective hard drive by reading the drive LEDs on the front panel. A defective drive LED does not light up. For information about the location of the drive status indicators, see “Front panel indicators” on page 5.
2. Unlock the control bay cover by inserting the supplied key into the lock and turning it counterclockwise until it points to the unlocked icon.
3. Remove the front bezel by pressing the release latch on both sides of the front bezel, then pulling out the bezel.
4. Remove the defective hard drive by raising the hard drive carrier handle, then sliding the hard drive carrier out of the bay.
5. Install a new drive into the hard drive carrier. Make sure that the new hard drive is the same drive size as the failed hard drive.

6 Insert the hard drive carrier into the bay and lock it into place.

7 Replace the front bezel, then lock the control bay cover. The new hard drive's status LED lights up. The RAID recovery begins.

4 Configuring the NAS

This chapter describes how to configure the NAS, perform NAS functions, and view events on the NAS's LCD screen.

Overview

The LCD screen lets you see at a glance the name, firmware version, and total number of events logged by the NAS. Normally, the Windows monitoring agent and the drivers send the messages that appear on the LCD screen.

You can instantly configure the NAS and view error events on the LCD screen without needing to run the Administrative Tool program in Microsoft Windows. The drivers and monitor agent on the NAS can send system error event logs and RAID information to the LCD screen. You can set or check network settings, date and time settings, fan speeds, and CPU temperatures, and shut down or reboot the NAS using the LCD control panel.

After turning on the NAS, the NAS starts up and the message “OS Booting” is displayed on the LCD screen. When the startup is complete, the NAS name and IP address appear on the LCD screen.

Main menu

The LCD menu contains the following options:

Setting	Description
View Info	Displays information about the firmware and number of events that occurred in the NAS.
Network	Lets you view and manually or automatically set the NAS's IP address. This menu include the following options and commands: **LAN 1** DHCP - ▪ DHCP1 On - ▪ DHCP1 Off - ▪ OK Manual - ▪ IPAddr1 - ▪ NetMask1 - ▪ GWIP1 - ▪ OK **LAN 2** DHCP - ▪ DHCP2 On - ▪ DHCP2 Off - ▪ OK Manual - ▪ IPAddr2 - ▪ NetMask2 - ▪ GWIP2 - ▪ OK
Date/Time	Lets you perform the following: ▪ Set Date ▪ View Date
SystemInfo	Displays processor temperature and fan speed.
View Event	Displays events logged by the NAS or applications.
ShutDown	Lets you perform the following: ▪ Shut down ▪ Reboot

You can press any button on the front panel of the NAS to enter the main menu. To move through the options, press the **Previous** or **Next** button until the option you want is highlighted. To select a highlighted menu option, press the **Enter** button.

View Info

This option lets you view the name, firmware version number, and the total number of system events listed in the event log.

(Example) WNASE 4013622 1.2.2

Events=# 7

Network

The Network option lets you view or set the NAS's IP address.

Important

When manually entering an IP address, make sure that the value you enter is not same with one that is currently used by another machine in the same network. If you use an IP address that is already used elsewhere, the message "No error" displays on the LCD screen, indicating a malfunction.

Some values cannot be set due to subnet mask allocation restrictions.

Configuring the LAN1 setting

DHCP (Dynamic Host Configuration Protocol)

This option lets the NAS automatically obtain IP settings from the LAN1 host.

To configure LAN1 using DHCP:

1. Press the **Enter** button.
2. Press the **Next** or **Previous** button to select **Network** on the Main menu, then press the **Enter** button.
3. Select **LAN 1**, then press the **Enter** button.
4. Select **DHCP**, then press the **Enter** button.

5 Select **DHCP1 On** if you want to get an IP address assigned automatically from the NAS, then press the **Enter** button.

- OR -

Select **DHCP1 Off** if you want to manually set the IP settings (IP address, net mask, and gateway IP address), then press the **Enter** button.

An asterisk appears next to the *DHCP On* or *DHCP Off* option.

6 Select **OK**, then press the **Enter** button. The “Wait host respond” message appears on the LCD screen. After a few seconds, the “Setting OK” message appears.

Manual

This option lets you manually enter the IP, net mask and gateway IP address for the LAN1 host.

To configure LAN1 manually:

1 Press the **Enter** button.

2 Press the **Next** or **Previous** button to select **Network** on the Main menu, then press the **Enter** button.

3 Select **LAN 1**, then press the **Enter** button.

4 Select **Manual**, then press the **Enter** button.

5 Select **IPAddr1**, then press the **Enter** button.

6 Enter the IP address by pressing the **Enter** button to increase number input. Press the **Next** button to move the cursor to input the remaining numerical value of the IP address, then press the **Exit** button.

(Example) 192.163.001.010

7 Select **NetMask1**, then press the **Enter** button.

8 Enter the subnet mask, then press the **Exit** button to end input.

9 Select **GWIP1**, then press the **Enter** button.

10 Enter the gateway IP address, then press the **Exit** button to end input.

11 Select **OK**, then press the **Enter** button. The “Wait host respond” message appears on the LCD screen. After a few seconds, the “Setting OK” message appears.

Configuring the LAN2 setting

DHCP

This option lets the NAS automatically obtain IP settings from the LAN2 host.

To configure LAN2 using DHCP:

1 Press the **Enter** button.

2 Press the **Next** or **Previous** button to select **Network** on the Main menu, then press the **Enter** button.

3 Select **LAN 2**, then press the **Enter** button.

4 Select **DHCP**, then press the **Enter** button.

5 Select **DHCP2 On** if you want to get IP address assigned automatically from the NAS, then press the **Enter** button.

- OR -

Select **DHCP2 Off** if you want to manually set the IP settings (IP address, net mask, and gateway IP address), then press the **Enter** button.

An asterisk appears next to the *DHCP On* or *DHCP Off* option.

6 Select **OK**, then press the **Enter** button. The “Wait host respond” message appears on the LCD screen. After a few seconds, the “Setting OK” message appears.

Manual

This function gives you the option to manually enter the IP, net mask and gateway IP address of the LAN2 host.

To configure LAN2 manually:

1. Press the **Enter** button.
2. Press the **Next** or **Previous** button to select **Network** on the Main menu, then press the **Enter** button.
3. Select **LAN 2**, then press the **Enter** button.
4. Select **Manual**, then press the **Enter** button.
5. Select **IPAddr2**, then press the **Enter** button.
6. Enter the IP address by pressing the **Enter** button to increase number input. Press the **Next** button to move the cursor to input the remaining numerical value of the IP address, then press the **Exit** button.

   (Example) 192.163.001.010
7. Select **NetMask2**, then press the **Enter** button.
8. Enter the subnet mask, then press the **Exit** button to end input.
9. Select **GWIP2**, then press the **Enter** button.
10. Enter the gateway IP address, then press the **Exit** button to end input.
11. Select **OK**, then press the **Enter** button. The “Wait host respond” message appears on the LCD screen. After a few seconds, the “Setting OK” message appears.

Date/Time

This option is used to set and view the date and time on the NAS.

Setting the date and time

To set the date and time:

1. Press the **Enter** button.
2. Press the **Next** or **Previous** button to select **Date/Time** on the Main menu, then press the **Enter** button.
3. Select **Set Date**, then press the **Enter** button.
4. Select **Input date**, then press the **Enter** button.
5. Enter the date (month/day/year) and time (hour:minute:second) by pressing the **Enter** button to increase number input. Press the **Next** button to move the cursor to input the remaining numerical value of the date and time field, then press the **Exit** button to end input.

   (Example) 01/15/02

   (Example) 10:05:03
6. Select **OK** from the menu, then press the **Enter** button. The “Wait host respond” message appears on the LCD screen. After a few seconds, the “Setting OK” message appears.

Displaying the date and time

To display the date and time:

1. Press the **Enter** button.
2. Press the **Next** or **Previous** button to select **Date/Time** on the Main menu, then press the **Enter** button.
3. Select **View Date,** then press the **Enter** button. The “Wait host respond” message appears on the LCD screen. After a few seconds, the date and time appear.

System Info

The SystemInfo menu displays the processor temperature and fan speed reading.

Viewing the CPU temperature

To view the CPU temperature:

1. Press the **Enter** button.
2. Press the **Next** or **Previous** button to select **SystemInfo** on the Main menu, then press the **Enter** button.
3. Select **CPU**, then press the **Enter** button. The “Wait host respond” message appears on the LCD screen. After a few seconds, the processor temperature appears.

Viewing the fan speed

To view the fan speed:

1. Press the **Enter** button.
2. Press the **Next** or **Previous** button to select **SystemInfo** on the Main menu, then press the **Enter** button.
3. Select **Fan**, then press the **Enter** button.
4. Select the number corresponding to the fan you want to view speed of. The NAS is equipped with seven fans. The “Wait host respond” message appears on the LCD screen. After a few seconds, the fan speed appears.

View Event

Use this submenu to display the events logged by the NAS or programs. These event logs display hardware and software information about the NAS, as monitored by the Microsoft Windows Administrative Tool - Event Viewer. For information about using the Event Viewer, see the Event Viewer's online help.

To view system events:

1. Press the **Enter** button.
2. Press the **Next** or **Previous** button to select **View Event** on the Main menu, then press the **Enter** button.
3. The current event log's sequence number, event type, and event ID are displayed on the LCD screen. Up to 63 events can be viewed from the LCD screen.

   (Example) 1,001,A2345

   In the example above, the numerical value 1 stands for the sequence number, 001 stands for the event type, and A2345 stands for the event ID. There are two types of events:

   - 001 — Indicates an error occurred in the system
   - 002 — Indicates a system warning

Shut Down

The ShutDown menu lets you turn off or restart the NAS.

Turning off the NAS

To turn off the NAS:

1. Press the **Enter** button.
2. Press the **Next** or **Previous** button to select **ShutDown** on the Main menu, then press the **Enter** button.

3 Select **Shutdown**, then press the **Enter** button. The “Wait for host respond” message appears. After a few seconds the “Shutdown OK” message appears and the NAS shuts down.

Rebooting the NAS

To reboot the NAS:

1 Press the **Enter** button.

2 Press the **Next** or **Previous** button to select **ShutDown** on the Main menu, then press the **Enter** button.

3 Select **Reboot**, then press the **Enter** button. The “Wait for host respond” message appears. After a few seconds the “Reboot OK” message appears and the NAS restarts.

5 System Management

This chapter gives information about the software programs and utilities bundled with your NAS. Your NAS supports the following system management utilities:

- Windows Installer. This component of any Microsoft Windows operating system lets you install drivers for network, hard drive, and other component functions. For more information, see “Windows installer” on page 52.
- RAID Configuration. This program lets you change the RAID configuration. For more information, see “RAID Configuration” on page 54.
- System Image Restoration. Recovers your NAS’s original factory default settings. For more information, see “System Image Restoration” on page 56.
- NAS Explorer. This program lets you locate, view events, and manage the NAS from a remote computer. For more information, see “NAS Explorer” on page 57.

Windows installer

Your NAS's Windows operating system includes drivers and service support for network, hard drive, and LCD functions. For installation procedures, refer to the related README documents in the individual directories.

Important

The NAS is preinstalled with all the drivers and services necessary for the NAS to function correctly. This section is provided for software updates. If an upgrade or patched driver is available, you can refer to the information below to update the driver.

The Windows installer include the following components and drivers:

- LCD software components
  - fpb.sys — LCD Windows driver.
  - WNAS_SMBus — Driver shared by fpb.sys and WNASHealthy.sys.
  - FPBSrv.exe — Windows service, needed to process LCD requests.
  - EventLog.mof — Indicates which event will be captured and sent to the LCD screen.
  - EvConsumerSrv.exe — Service is invoked by the WMI service and sends new events to the LCD screen.
  - InstallFPB/RemoveFPB — Installation programs that can be used to install or remove the fpb.sys driver and FPBSrv.exe service.
- Hardware healthy components
  - WNASHealthy.sys — Detects and adjusts fan speed based on processor temperature.
  - EvConsumerSrv2.exe — A Windows service that raises the hardware monitor events to SAK.
- NAS Explorer Agent
  - NASExploreAgent.exe — A Windows service that communicates with NAS Explorer.
- Intel Network driver

Includes drivers and utilities to provide advanced NIC management functions such as fail over or aggregation. For more information, see the Intel Network driver's online Help.

- Disk driver

  Provides performance improvement for the drive IO(s). You can update the driver using the Device Manager utility. In the **SCSI and RAID controllers device type** option, select a device such as **(PDC20275-66) UDMA133 PCI ATA 2 Channel IDE Host Adapter** to update your driver. For details on how to update a driver, see the Device Manager utility's online Help.

RAID Configuration

This utility lets you change the default RAID configuration, such as the system volume size and the RAID level of your hard drive.

Caution

Using the RAID Configuration utility erases all data previously saved in the hard drives. Make sure that you back up important files before starting the configuration process.

Important

If you change the system volume size, you should restart the NAS.

If you set the data volume to RAID 5, the initialization process is performed in the background and takes several hours to complete. During this process, you can shut down and restart the NAS, and access the data volume.

To change the RAID configuration:

1. Insert the *860 SATA NAS Restoration CD* into the CD drive. The *Setup* menu appears.
2. Select **RAID Configuration**. The original system volume size is displayed. The program prompts you to change the configuration of the system volume.
3. Select **Y**.
4. Enter a number to specify how many gigabytes will be allocated to the system volume, then press **ENTER**. If the number you entered is 0, the program prompts you to enter the new capacity again.

   The program asks you to confirm the change.
5. Press **Y** and press **ENTER** to make the change, or press **N** and press **ENTER** to abort.

   The original data volume RAID level is displayed. The program prompts you to change the configuration of the data volume.
6. Press **Y** and press **ENTER** to change the configuration, or press **N** and press **ENTER** to abort. The program prompts you with the available RAID levels to set for the data volume.

7 Select 0, 1, or 5, then press **ENTER**. The program prompts you to confirm your choice of the new RAID level.

8 Press **Y** and press **ENTER** to confirm the level, or press **N** and press **ENTER** to abort.

The program displays the message “The RAID configuration is changed, all data will be lost after you confirm the change. Are you sure?”

9 Press **Y** and press **ENTER** to apply the changes (all data will be lost), or press **N** and press **ENTER** to abort the changes.

The program generates the new volumes if you accepted the changes, or aborts the changes and returns you to the main menu.

Important

If the settings have not changed, the program displays the message “The RAID configuration is not changed.”

System Image Restoration

This utility lets you restore the system image factory default settings.

Caution

Using the System Image Restoration utility removes all data on the system volume. Make sure that you back up important files before starting the restoration process.

To restore the system image:

1. Insert the *860 SATA NAS Restoration CD disc 1* into the CD drive and boot to the CD. The *Main Menu* opens.
2. Select **Restore Factory Installation** to restore the system volume. A warning message appears indicating that all data will be destroyed if you proceed with this operation.
3. Press **Y** to proceed, but if you want to cancel the operation, press **CTRL+C**. A message may appear asking whether the partition sizes are accurate.
4. Select **Yes**. The message "Proceed with disk restore?" appears.
5. Select **Yes**. The program prompts you to begin the next part of the image.
6. Insert the *860 SATA NAS Restoration CD disc 2* into the CD drive, then select **OK**. The message "Imaging Completed Successfully" appears, and the server restarts.

Caution

Using the System Image Restoration utility removes all data on the system volume. Make sure that you back up important files before starting the restoration process.

Important

Restoring the system volume should take from 15 to 30 minutes to complete, depending on your configuration. After restoration, the data volume will not be initialized.

NAS Explorer

NAS Explorer allows NAS server management via the Web, standard network, or dial-up connections. This utility lets you view the basic NAS configuration, retrieve events, and configure the NAS from a remote computer.

Installing NAS Explorer

Before you begin installation, make sure that your computer has the following:

- Intel Pentium microprocessor
- Microsoft Windows NT, Windows 2000, Windows XP, or Windows Server 2003 operating system
- Ethernet card

To install NAS Explorer on a Microsoft Windows platform:

1. Insert the *860 SATA NAS Application and Documentation CD* into your computer's CD drive. The installation menu is displayed.
2. Follow the on-screen instructions to complete installation.

Uninstalling NAS Explorer

To uninstall NAS Explorer from a Microsoft Windows platform:

1. In Control Panel, double-click the **Add/Remove Programs** icon. The *Add/Remove Programs* dialog box appears.
2. Click the listing for **NAS Explorer**, then click **Remove**. The *Confirm File Deletion* dialog box appears.
3. Click **OK** to remove all components.
4. Click **Finish** to exit.

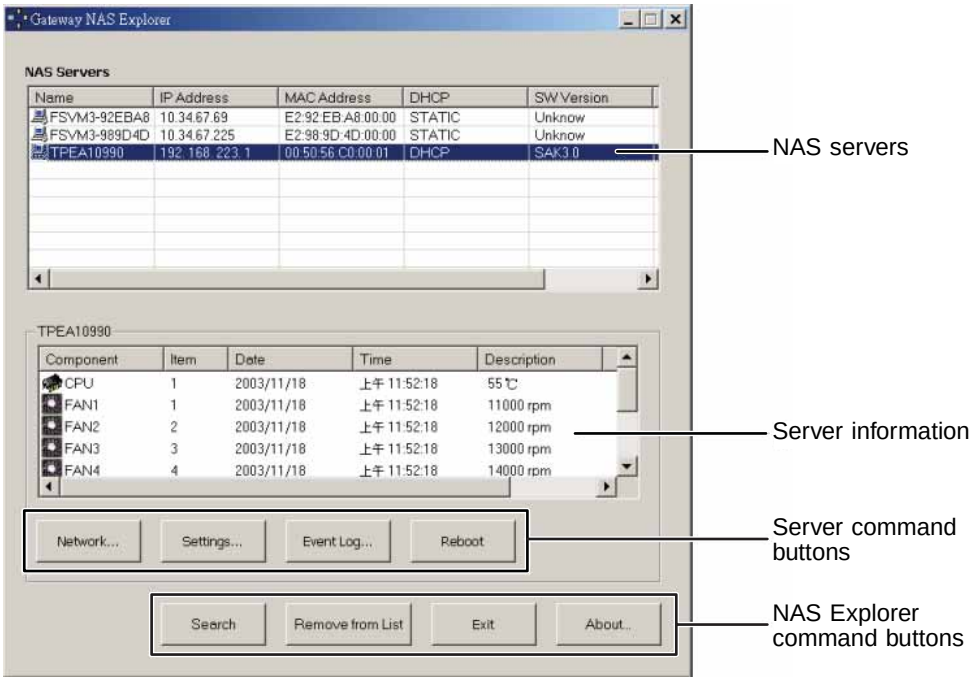
Running NAS Explorer

To run NAS Explorer:

- Click **Start**, **Programs**, **NAS Explorer**, then click **NAS Explorer**. The *NAS Explorer* window appears.

NAS Explorer user interface

NAS Explorer's easy-to-use interface lets you remotely configure the NAS on the network.



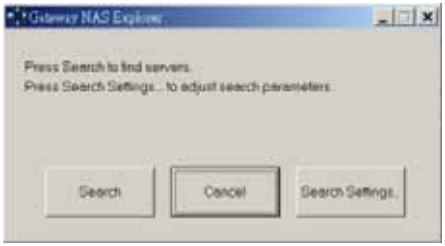
Component	Description
NAS Servers	Lists the NASs discovered by the utility.
Server information	Lists the NAS's components, such as the processor temperature and fan speed reading.

Component	Description
Server command buttons	These commands apply to the NAS: ▪ Network — Retrieves a NAS's IP address and DNS settings automatically from the NAS's DHCP, or you can manually set the NAS's IP address, Subnet mask, Gateway IP address, and DNS server address to connect to the network. ▪ Settings — Lets you remotely configure and manage your NAS. ▪ Event Log — Displays events logged by the NAS. ▪ Reboot — Reboots the NAS.
NAS Explorer command buttons	These commands apply to the NAS Explorer: ▪ Search — Finds a server on the network. ▪ Remove — Deletes a NAS from the NAS Servers list. ▪ Exit — Quits the application. ▪ About — Displays the copyright notice and version number of the application.

Finding a NAS on the network

To find a NAS on the network:

1 On the NAS Explorer window, click the **Search** button. When NAS Explorer completes the search, the following dialog box appears:

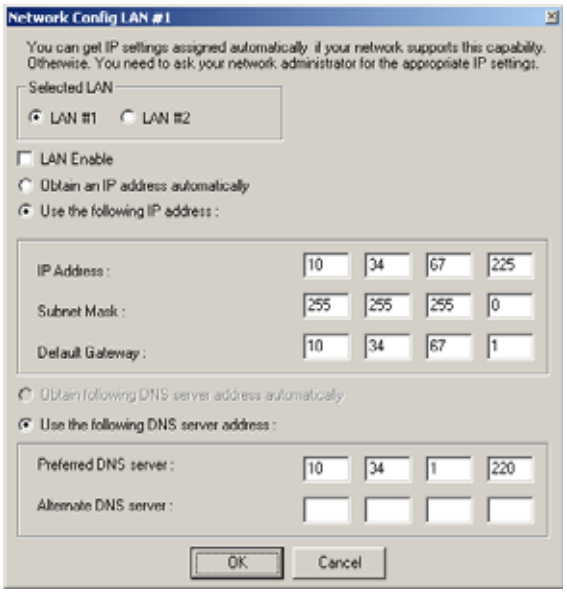


2 Click **Search** to locate another NAS on the network, or click **Search Settings** to configure the search range for locating NASs on the network. For more information on configuring the search range settings, see "Configuring the search range setting" on page 61.

Configuring the NAS's network setting

To configure the NAS's network setting:

1. On the NAS Servers list, click a server name, then click **Network**. The *Network Config* window opens.



2. Click the LAN host.

3. Click **Obtain an IP address automatically** to obtain an IP address from a DHCP server.

   - OR -

   Click **Use the following IP address** to manually enter the NAS's IP address and subnet mask. You can also enter the NAS's gateway IP address and DNS NAS's IP address. Both IP address and subnet mask are required during network setting, but Gateway IP and DNS server address are optional items. You can still connect to the NAS without the Gateway IP and DNS server addresses.

4 Click **OK**. The login dialog box appears.

5 Enter the NAS's user name and password, then click **OK**.

Configuring the search range setting

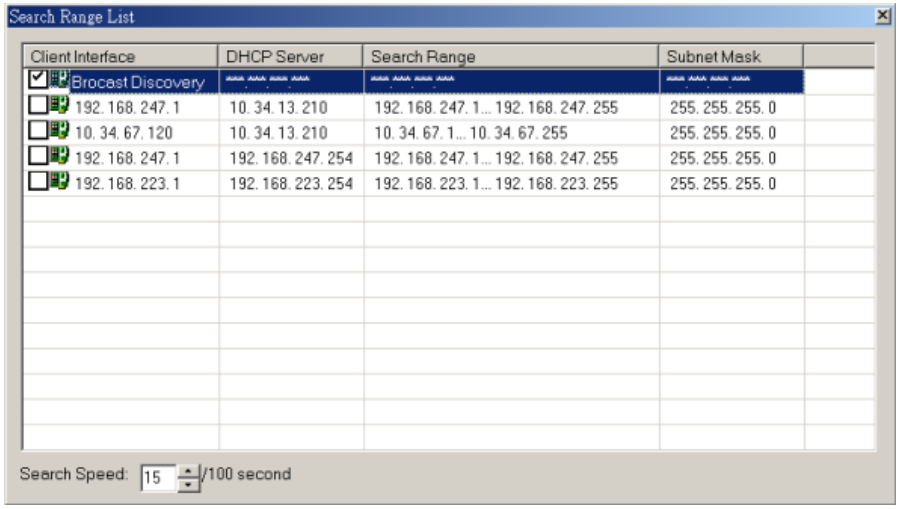
You can add, modify, or delete search ranges.

Adding a search range

To add a search range:

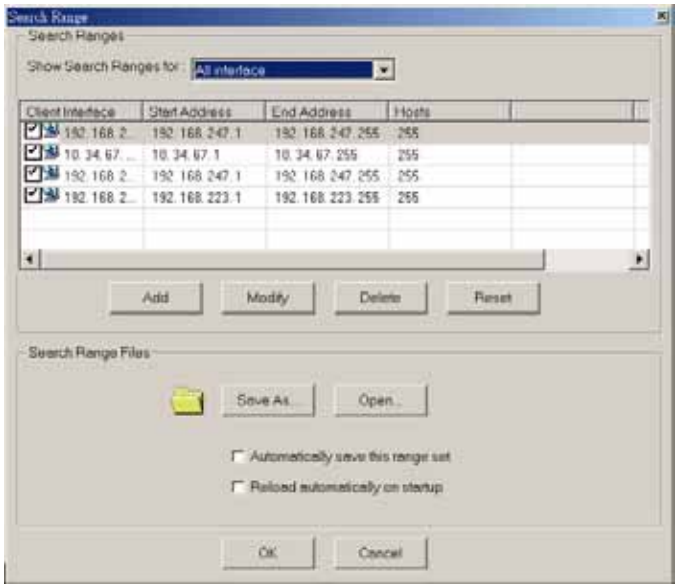
1 On the Gateway NAS Explorer window, click **Search**, then click **Search Settings**.

The *Search Range List* window appears.

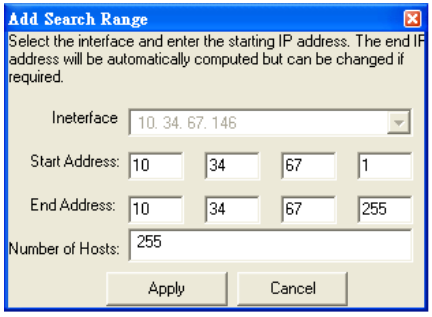


2 Set the search speed for discovering a NAS on the network.

3 Double-click a client interface in the **Search Range** list. The *Search Range* window appears.



4 Click **Add**. The *Add Search Range* dialog box appears.



5 Specify the range of IP addresses from which NAS Explorer will start and end its search.

6 Click **Apply**.

Modifying a search range

To modify a search range:

1. Double-click a client interface in the **Search Range** list.
2. Click **Modify**.
3. Enter the new range of IP addresses from which NAS Explorer will start and end its search.
4. Click **Apply**.

Deleting a search range

To delete a search range:

1. Double-click a client interface in the **Search Range** list.
2. Click **Delete**.

Resetting a search range

To reset a search range:

1. Double-click a client interface in the **Search Range** list.
2. Click **Reset** to restore to default search criteria. The default search range spans the entire network for a NAS.

Archiving a search range

To archive a search range:

1. In the *Search Range List* window, select the search range you want to save.
2. Click **Save As**.

   - OR -

   Click the **Automatically save this range set** check box to save the **default.sr.** file to your hard drive.
3. Click the **Reload automatically on startup** check box to load the file during system startup.
4. In the **File name** box, type a name for the archived log file.
5. Click **Save**.

Opening an archived search range

To open an archived search range:

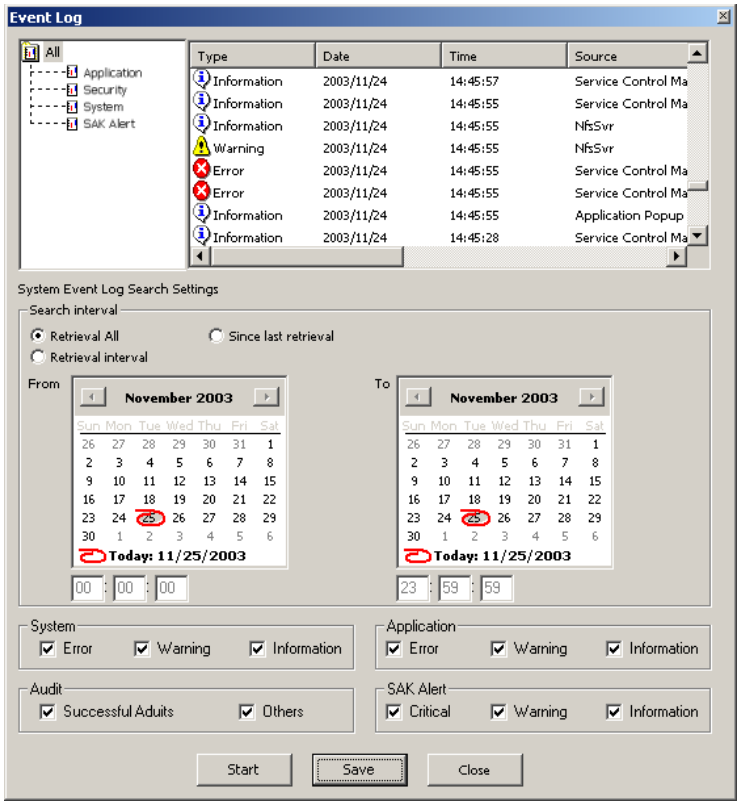
1. In the *Search Range List* window, click **Open**.
2. Click the file you want to open, then select the folder that contains the document.
3. Click **Open**.
4. Click **OK**.

Managing event logs

Viewing an event log

To view an event log:

1 On the *NAS Explorer* window, click the **Event Log** button. The *Event Log* window appears.



The Event Log is displayed with the Windows Event Viewer tool. It starts automatically when you connect to the NAS. See to the Event Viewer's online help for detailed information about the Event Viewer.

The Event Log window displays information about the hardware, software, system problems, monitor security events, and alerts logged by the NAS.

The *Logs* pane shows a heirarchical view of the logs recorded by the Windows Event Viewer.

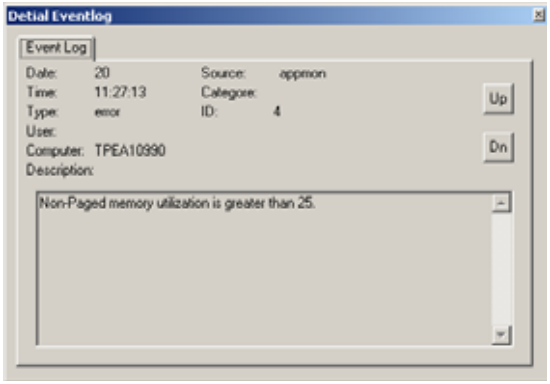
Log type	Description
Application	Events logged by applications in the NAS.
System	Events logged by Windows system components.
Security	Security events logged by the NAS.
SAK alerts	Events logged by the Windows SAK in the NAS.

The Details pane shows the different event types and details of each event.

Event type	Description
Error	Indicates a loss of data or loss of functionality.
Warning	Indicates a possible problem may occur in the future.
Information	Indicates a successful operation of a program, driver, or service in the NAS.
Successful audits	Indicates a successful attempt to log on to the NAS.

2 In the *Logs* pane, select the log you want to view.

3 In the *Details* pane, double-click an event to view the event's detailed information. The *Detail Event Log* window appears.

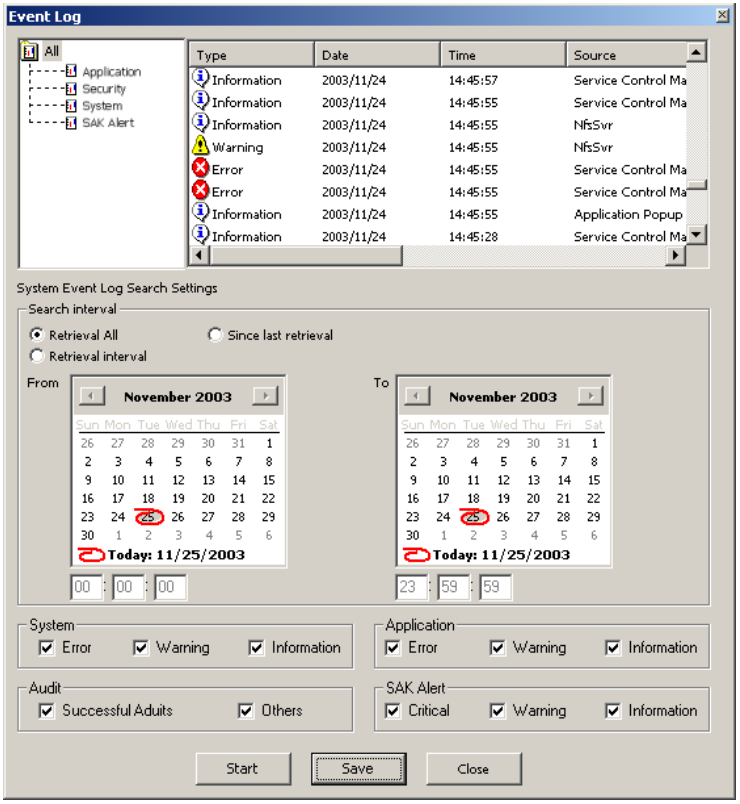


4 To view details about the previous or next event, click the **Up** and **Dn** buttons.

Searching for specific types of events

To search for specific types of events:

1 On the *NAS Explorer* window, click the **Event Log** button. The *Event Log* window appears.



2 In the *System Event Log Search Settings* area, select the type of search interval. The types of search interval include:

Search interval	Description
Retrieve all	Recovers all events in the NAS.
Since last retrieval	Recovers the last event viewed on the NAS Explorer.
Retrieval interval	Recovers a specific event that occurred in the NAS.

3 Enter the specific date and time of the event log.

4 Select an event.

5 Click **Start**.

Archiving an event log

To archive an event log:

1 On the *NAS Explorer* window, click the **Event Log** button.

2 Click **Save**. The *Open* dialog box appears.

3 In the **File name** box, type a name for the archived log file.

4 Click **Save**.

6 Troubleshooting

Read this chapter for instructions on dealing with common problems. If problems still persist, contact Gateway Technical Support.

Telephone support

Before calling Gateway Technical Support

If you have a technical problem with your NAS, follow these recommendations before contacting Gateway Technical Support:

- Make sure that your NAS is connected correctly to a grounded AC outlet that is supplying power.
- If a peripheral device, such as a keyboard or mouse, does not appear to work, make sure that all cables are plugged in securely and plugged into the correct port or jack.
- If you have recently installed hardware or software, make sure that you have installed it following the instructions provided with it. If you did not purchase the hardware or software from Gateway, see the manufacturer's documentation and technical support resources.
- If you have "how to" questions about using a program, see:
  - The program's online Help
  - The program's documentation
  - Your operating system's documentation
  - The software or hardware manufacturer's Web site
- Have your client ID, serial number (located on the side or back of your case), and order number available, along with a detailed description of your issue, including the exact text of any error messages, and the steps you have taken.
- Make sure that your NAS is nearby at the time of your call. The technician may have you follow appropriate troubleshooting steps.
- Consider using Gateway's online technical support. Gateway's Web site has FAQs, tips, and other technical help. You can also use the Web site to e-mail Technical Support. For more information, visit Gateway's Technical Support Web site at support.gateway.com.

Telephone support

Gateway offers a wide range of customer service, technical support, and information services.

Telephone numbers

You can access the following services through your telephone to get answers to your questions:

Resource	Service description	How to reach
Fax on demand support	Order a catalog of documents on common problems, then order documents by document numbers. The documents will be faxed to you.	800-846-4526 (US) 877-709-2951 (Canada)
Tutorial support	Learn networking tips from Gateway's tutorial support on a per-issue fee basis.	877-485-1464 (US) 800-846-3609 (Canada and Puerto Rico) 605-232-2191 (all other countries) 800-846-1778 (TDD)
Gateway Technical Support	Talk to a Gateway Technical Support representative about a non-tutorial technical support question. (See "Before calling Gateway Technical Support" on page 72 before calling.) Technical support is available 24 hours a day, seven days a week, 365 days a year. TDD Technical Support (for hearing impaired) is available: Weekdays 6:00 a.m. - 8:00 p.m. Central Time Weekends 6:00 a.m. - 5:00 p.m. Central Time	877-485-1464 (US) 800-846-3609 (Canada and Puerto Rico) 605-232-2191 (all other countries) 800-846-1778 (TDD)
Sales, accounting, and warranty	Get information about available systems, pricing, orders, billing statements, warranty service, or other non-technical issues.	800-846-2000 (US) 888-888-2037 (Canada)

Safety guidelines

While troubleshooting your NAS, follow these safety guidelines:

- Never remove the top cover while your NAS is turned on and while the network cable and the power cords are connected.
- Make sure that you are grounded correctly before opening the NAS. For more information about preventing damage from static electricity, see "Preventing static electricity discharge" on page 34.
- After you complete any maintenance task where you have to remove the top cover, make sure that you close the case and reconnect all cables before you restart your NAS.

Warning

To avoid bodily injury, do not attempt to troubleshoot your NAS problem if:

- The power cords or plugs are damaged
- Liquid has been spilled into your NAS
- Your NAS was dropped
- The case was damaged

Instead, unplug your NAS and contact a qualified computer technician. If your NAS was damaged during shipment from Gateway, contact Gateway Technical Support. For more information, see "Telephone support" on page 72.

Troubleshooting steps

The NAS does not work.

- Make sure that the power button on the front panel is turned on.
- Make sure that the power cable is connected correctly.
- Turn off the NAS by pressing the power button, then restart the NAS. During the startup procedure, the NAS checks the file system. The length of this check varies depending on the amount of data on the NAS (in some extreme cases, it can take as long as two hours).

The NAS cannot be accessed from a browser.

- Make sure that the network cable is connected correctly.
- Make sure that the LINK LED and ACT LED are lit.
- Make sure that the IP address entered on the browser is correct.
- Make sure that no other networked device is using the same IP address as the NAS.
- Make sure that the network cable is not damaged.
- Make sure that there is no problem with the connection between the network hub and the computer, NAS, or hub connectors.

NAS cannot read the CD information.

- Make sure that you are using the correct type of disc.
- Make sure the CD is correctly inserted in the drive.
- Make sure that the CD is clean and is not scratched.

A new peripheral is not working correctly.

- Make sure that the cables for the new peripheral are firmly connected and that the pins are not bent.
- See the documentation that came with the new peripheral to see if any device drivers need to be installed.
- Make sure that the network status indicator lights up.
- Check the cabling and network equipment for the correct connection.
- Reinstall the network drivers.

A peripheral device connected to a USB connector does not work.

- Reduce the number of external devices connected to a USB hub.
- See the documentation that comes with the device.

Cannot eject CD drive tray

- Insert the tip of a straightened paper clip into the manual eject hole of the CD drive tray.

Glossary A

10 Base-T
A UTP cable consisting of four pairs of two wires (8 conductors) each, twisted together into a single unshielded set (the cable is not enclosed in a metallic mesh for blocking electromagnetic noise). Also referred to as a twisted pair cable, it is commonly used for connection in Ethernet-based local area networks.

A cable of this type is capable of carrying unmodulated signal data at the rate of 10 megabits per second over distances of up to 328 feet (100 meters) (with the 10 Mbps base band system).

100 Base-TX

A UTP cable consisting of four pairs of two wires (8 conductors) each, twisted together into a single unshielded set (the cable is not enclosed in a metallic mesh for blocking electromagnetic noise). This is referred to as a twisted pair cable. These cables meet the category 5 specifications for such cables.

A cable of this type is capable of carrying unmodulated signal data at the rate of 100 megabits per second over distances of up to 328 feet (100 meters) (with the 100 Mbps base band system). It is used for connecting to local area networks using fast Ethernet, which operate at speeds in excess of 10 Mbps (data transfer at the rate of 10 megabits per second).

Capacity limit

Limits the amount of drive space that a particular user can use. Also referred to as a *quota* or *disk quota*.

DHCP (Dynamic Host Configuration Protocol)

A protocol for easily assigning dynamic IP addresses to devices on a network. With DHCP, IP addresses can be traced by the software without requiring an administrator to manually manage the task.

Event Viewer

An administrative tool that is used to view and manage logs of system, program, and security events on your NAS. The Event Viewer displays five types of events:

- Error

  An error log describes a significant problem that has occurred, such as a loss of data or loss of functionality.

- Warning

  A warning log indicates a potential problem in the future.

- Information

  An information log describes operation of an application, driver, or service.

- Success audit

  A success audit event is a user's successful attempt to log on to the NAS.

- Failure audit

  A failure audit log is a failure to access a network drive.

Hub
A switching device through which a number of devices (such as computers) can be connected to a network. Since connected devices are arrayed with the hub at the center, this type of connection is referred to as a star topology. Most hubs used with the Internet are equipped with a signal amplifier (repeater) to support physical extensions.

IP address
An identifier used to indicate the addresses of devices (such as computers) that are connected to a network. Because this identifier is used to designate a particular destination during data exchange, each IP address must be unique. The address consists of four period-delimited fields, each field being a number from 0 to 255.

LAN (Local Area Network)
A network encompassing a relatively limited area, such as a building, a floor, an organization, or a company.

LED (Light-Emitting Diode)
A diode that emits light and is used as a status indicator.

Log
A record of events occurring during operation, along with their times of occurrence, or the file containing such a record. For example, an *error log* contains a list of errors occurring in the NAS, while an *access log* records access to the NAS.

Mount
To make accessible, either by connecting to the computer itself or by placing onto the hard drive or other storage medium of a computer on the network.

Network card
A device installed in a computer or router to enable connection to a network. A network card is equipped with a port (connector) for connection to a 1000 base-T, 100 Base-TX, 10 Base-T, or other network cable. Also referred to as a LAN card, LAN board, or NIC (network interface card).

Network system
A system for sharing resources such as files and printers.

NFS (Network File System)

A method for sharing files over a network. NFS makes it possible to use files located on another computer on the network as if they were located on your own machine. A trademark of Sun Microsystems, it is primarily used with UNIX, but has also been adapted for use with Microsoft Windows operating systems.

Operating system

Basic software that manages and controls operation of a computer. Microsoft® Windows® and UNIX are operating systems.

RAID

RAID (redundant array of independent disks) is an array of multiple, independent hard drives that provide high performance and fault tolerance. The RAID subsystem controller implements several levels of the Berkeley RAID technology. An appropriate RAID level is selected when the volume sets are defined or created. This decision is based on drive capacity, data availability, (fault tolerance or redundancy), and drive performance.

RAID level

RAID level refers to the level of data performance and protection of a volume set. RAID arrays can be implemented in several ways, using technologies such as mirroring, striping, duplexing, and parity. The RAID levels supported in the RAID subsystem are RAID 0, RAID 1, RAID 10 and RAID 5.

RAID 0

RAID 0, also known as *striping*, is the simplest RAID level. RAID 0 does not involve data redundancy, but it does offer the best high-speed data throughput. RAID 0 breaks up data into smaller blocks, then writes a block to each drive in the array.

RAID 1

RAID 1, also known as *disk mirroring*, writes data simultaneously to several duplicate drives. If one drive fails, the other drive(s) continues to function as a single drive until the failed drive is replaced.

RAID 5

RAID 5 is also known as *striping with parity at byte level*. In RAID 5, both data and parity information are written to all of the drives in the subsystem. If one drive in the system fails, the parity information can be used to reconstruct the data from that drive. All drives in the array system can be used for a seek operation at the same time, thereby increasing the performance of the RAID system.

RAID 10

RAID 10 is a combination of RAID 0 and RAID 1, striping and disk mirroring. RAID Level 10 combines the fast performance of Level 0 with the data redundancy of Level 1. In this configuration, data is distributed across several drives, similar to Level 0. Then the data are duplicated to another set of drives for data protection. RAID 10 provides the highest read/write performance of any of the hybrid RAID levels.

RAID 0+1

RAID 0+1 is a mirrored array whose segments are RAID 0 arrays. It has the same fault tolerance as RAID 5, and the same overhead for fault tolerance as mirroring alone. This RAID has excellent performance, but not maximum reliability.

Rack mount

Ordinarily, a 19-inch rack (cabinet) in which servers or drive units made to fit such a rack are mounted. A rack mount kit is hardware, such as sliding rails, for mounting devices in such a rack.

Router

A repeater for connecting multiple networks. A router determines the optimum path (route) for forwarding received data, and provides control over a higher level of processing than a device such as a hub. A router is used in constructing medium- to large-scale networks.

Server

A computer that provides many types of services to computers attached to it. Examples include file servers, Web servers, and data servers.

Service

A task (sometimes known as a *process*) or application that resides in the system and runs in the background. Also referred to as a daemon or driver.

Subnet mask

A number that is used for dividing IP addresses used on a TCP/IP network into network numbers and host numbers. This method is used to allow different networks that are connected through a router to recognize that they are different networks.

TCP/IP protocol

Generally used to refer to the established set of means and procedures by which devices connected to a TCP/IP network communicate with one another. TCP/IP is the most widely used of the various protocols, and is also used on the Internet.

Volume set

Volume set is a single logical device. It is organized in a RAID level with one or more physical drives. A volume set must be created either on an existing RAID set or on a group of available individual drives.

Web server

A server machine that distributes data for viewing over the Web, or the service provided by such a machine. Also referred to as a WWW (World Wide Web) server.

Windows network

A network built from machines that use a Microsoft® operating system. Uses a protocol called NetBEUI.

Windows Administrative tools

A collection of Windows tools (Component Services, Computer Management, Data Sources, Event Viewer, Local Security Policy, Performance and Services) for remotely managing a server from a computer running Windows.

Safety, Regulatory, and Legal Information

B

Important safety information

Your Gateway system is designed and tested to meet the latest standards for safety of information technology equipment. However, to ensure safe use of this product, it is important that the safety instructions marked on the product and in the documentation are followed.

Warning

Always follow these instructions to help guard against personal injury and damage to your Gateway system.

Setting up your system

- Read and follow all instructions marked on the product and in the documentation before you operate your system. Retain all safety and operating instructions for future use.
- Do not use this product near water or a heat source such as a radiator.
- Set up the system on a stable work surface.
- The product should be operated only from the type of power source indicated on the rating label.
- If your computer has a voltage selector switch, make sure that the switch is in the proper position for your area. The voltage selector switch is set at the factory to the correct voltage.
- Openings in the computer case are provided for ventilation. Do not block or cover these openings. Make sure you provide adequate space, at least 6 inches (15 cm), around the system for ventilation when you set up your work area. Never insert objects of any kind into the computer ventilation openings.
- Some products are equipped with a three-wire power cord to make sure that the product is properly grounded when in use. The plug on this cord will fit only into a grounding-type outlet. This is a safety feature. If you are unable to insert the plug into an outlet, contact an electrician to install the appropriate outlet.
- If you use an extension cord with this system, make sure that the total ampere rating on the products plugged into the extension cord does not exceed the extension cord ampere rating.
- If your system is fitted with a TV Tuner, cable, or satellite receiver card, make sure that the antenna or cable system is electrically grounded to provide some protection against voltage surges and buildup of static charges.

Care during use

- Do not walk on the power cord or allow anything to rest on it.
- Do not spill anything on the system. The best way to avoid spills is to avoid eating and drinking near your system.
- Some products have a replaceable CMOS battery on the system board. There is a danger of explosion if the CMOS battery is replaced incorrectly. Replace the battery with the same or equivalent type recommended by the manufacturer. Dispose of batteries according to the manufacturer's instructions.
- When the computer is turned off, a small amount of electrical current still flows through the computer. To avoid electrical shock, always unplug all power cables and modem cables from the wall outlets before cleaning the system.
- Unplug the system from the wall outlet and refer servicing to qualified personnel if:
  - The power cord or plug is damaged.
  - Liquid has been spilled into the system.
  - The system does not operate properly when the operating instructions are followed.
  - The system was dropped or the cabinet is damaged.
  - The system performance changes.

Replacement parts and accessories

Use only replacement parts and accessories recommended by Gateway.

Important

Do not use Gateway products in areas classified as hazardous locations. Such areas include patient care areas of medical and dental facilities, oxygen-laden environments, or industrial facilities.

Warning

To reduce the risk of fire, use only No. 26 AWG or larger telecommunications line cord.

Regulatory compliance statements

United States of America

Federal Communications Commission (FCC)
Unintentional emitter per FCC Part 15

This device has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio or television reception. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio and television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment to an outlet on a different circuit from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help.

Compliance Accessories:

All connections to other computing devices must be made using shielded cables to maintain compliance with FCC regulations. Only peripherals (input/output devices, terminals, printers, etc.) certified to comply with the Class B limits may be attached to this equipment. Operation with noncertified peripherals is likely to result in interference to radio and TV reception.

FCC declaration of conformity

Responsible party:

Gateway Companies, Inc.
610 Gateway Drive, North Sioux City, SD 57049
(605) 232-2000 Fax: (605) 232-2023

Product:

- Gateway 860 NAS

For unique identification of the product configuration, please submit the 10-digit serial number found on the product to the responsible party.

This device complies with Part 15 of the FCC Rules. Operation of this product is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Caution

Changes or modifications not expressly approved by Gateway could void the FCC compliance and negate your authority to operate the product.

Telecommunications per Part 68 of the Code of Federal Regulations (CFR 47) (applicable to products fitted with USA modems)

Your modem complies with Part 68 of the Code of Federal Regulations (CFR 47) rules. On the computer or modem card is a label that contains the CFR registration number and Ringer Equivalence Number (REN) for this device. If requested, this information must be provided to the telephone company.

A telephone line cord with a modular plug is required for use with this device. The modem is designed to be connected to the telephone network or premises wiring using a compatible modular jack which is Part 68-compliant. See installation instructions for details.

The Ringer Equivalence Number (REN) is used to determine the number of devices which may be connected to the telephone line. Excessive RENs on a telephone line may result in the devices not ringing in response to an incoming call. In most areas, the sum of RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to a line, as determined by the total RENs, contact the local telephone company.

If this device causes harm to the telephone network, the telephone company will notify you in advance that temporary discontinuance of service may be required. The telephone company may request that you disconnect the equipment until the problem is resolved.

The telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the operation of this equipment. If this happens, the telephone company will provide advance notice in order for you to make necessary modifications to maintain uninterrupted service.

This equipment cannot be used on telephone company-provided coin service. Connection to party line service is subject to state tariffs. Contact the state public utility commission or public service commission for information.

When programming or making test calls to emergency numbers:

- Remain on the line and briefly explain to the dispatcher the reason for the call.
- Perform such activities in the off-peak hours such as early morning or late evenings.

The United States Telephone Consumer Protection Act of 1991 makes it unlawful for any person to use a computer or other electronic device to send any message via a telephone fax machine unless such message clearly contains, in a margin at the top or bottom of each transmitted page or on the first page of the transmission, the date and time it is sent, an identification of the business, other entity, or other individual sending the message, and the telephone number of the sending machine or such business, other entity, or individual. Refer to your fax communication software documentation for details on how to comply with the fax-branding requirement.

Canada

Industry Canada (IC)
Unintentional emitter per ICES-003

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus as set out in the radio interference regulations of Industry Canada.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de Classe A prescrites dans le règlement sur le brouillage radioélectrique édicté par Industrie Canada.

Telecommunications per Industry Canada CS-03 (for products fitted with an IC-compliant modem)

The Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operation, and safety requirements. The Department does not guarantee the equipment will operate to the users' satisfaction.

Before installing this equipment, users should make sure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. In some cases, the inside wiring associated with a single-line individual service may be extended by means of a certified connector assembly. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should make sure, for their own protection, that the electrical ground connections of the power utility, telephone lines, and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

Warning

To avoid electrical shock or equipment malfunction do not attempt to make electrical ground connections by yourself. Contact the appropriate inspection authority or an electrician, as appropriate.

The **Ringer Equivalence Number** (REN) assigned to each terminal device provides an indication of the maximum number of terminals allowed to be connected to a telephone interface. The termination on an interface may consist of any combination of devices subject only to the requirement that the sum of the Ringer Equivalence Numbers of all the devices does not exceed 5.

Laser safety statement

All Gateway systems equipped with CD and DVD drives comply with the appropriate safety standards, including IEC 825. The laser devices in these components are classified as “Class 1 Laser Products” under a US Department of Health and Human Services (DHHS) Radiation Performance Standard. Should the unit ever need servicing, contact an authorized service location.

Warning

Use of controls or adjustments or performance of procedures other than those specified in this manual may result in hazardous radiation exposure. To prevent exposure to laser beams, do not try to open the enclosure of a CD or DVD drive.

California Proposition 65 Warning

Warning

This product contains chemicals, including lead, known to the State of California to cause cancer, birth defects, or reproductive harm.

Notices

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14303 Gateway Place
Poway, CA 92064 USA

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In the interest of continued product development, Gateway reserves the right to make improvements in this manual and the products it describes at any time, without notices or obligation.

Trademark Acknowledgments

1-800-GATEWAY, ActiveCPR, ALR, AnyKey, black-and-white spot design, CrystalScan, Destination, DestiVu, EZ Pad, EZ Point, Field Mouse, Gateway 2000, Gateway Country, gateway.net, Gateway stylized logo, Perfect Scholar, Solo, TelePath, Vivitron, stylized “G” design, and “You’ve got a friend in the business” slogan are registered trademarks and black-and-white spotted box logo, GATEWAY, Gateway Astro, Gateway@Work, Gateway Connected touch pad, Gateway Connected music player, Gateway Cyber:)Ware, Gateway Education:)Ware, Gateway Flex Case, Gateway Gaming:)Ware, Gateway GoBack, Gateway Gold, Gateway Learning:)Ware, Gateway Magazine, Gateway Micro Server, Gateway Money:)Ware, Gateway Music:)Ware, Gateway Networking Solutions, Gateway Online Network (O.N.) solution, Gateway Photo:)Ware, Gateway Professional PCs, Gateway Profile, Gateway Solo, green stylized GATEWAY, green stylized Gateway logo, Gateway Teacher:)Ware, Gateway Video:)Ware, HelpSpot, InforManager, Just click it!, Learn@Gateway, Kids BackPack, SERVE-TO-ORDER, Server Watchdog, the Spotted G Gateway Logo and the Spotted G Logo, SpotShop, Spotshop.com, and Your:)Ware are trademarks of Gateway, Inc. Intel, Intel Inside logo, and Pentium are registered trademarks and MMX is a trademark of Intel Corporation. Microsoft, MS, MS-DOS, and Windows are trademarks or registered trademarks of Microsoft Corporation. All other product names mentioned herein are used for identification purposes only, and may be the trademarks or registered trademarks of their respective companies.

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